AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the above-identified application:

1. (Currently amended) A hoop stress relief mechanism for a solid rotary body with two faces and an outer rim, the mechanism comprising

a slot extending inwardly a distance from the outer rim and providing communication between the first face and the second face, the slot having a first end at the outer rim and a second end, the slot also having a curved slot portion with a third end adjoining the second end and terminating at a tip, wherein the slot is formed by an electric discharge wire machine.

2. (Cancelled)

3. (Original) The hoop stress relief mechanism described in Claim 1, wherein the slot is J-shaped with a linear slot portion at the first end.

4. (Currently amended) The hoop stress relief mechanism described in Claim 3, wherein the linear slot portion is fabricated with a non-zero slot angle as defined as the angle between a tangent at the outer rim and a centerline of the linear slot portion where it intersects the outer rim.

5. (Currently amended) The hoop stress relief mechanism described in Claim 3, wherein the slot has a non-perpendicular slash angle defined as the angle a surface of the linear slot portion makes with a face of the rotary body.

6. (Original) The hoop stress relief mechanism described in Claim 1, wherein the rotary body is a turbine disk with a plurality of blades positioned around the outer rim.

7. (Original) The hoop stress relief mechanism described in Claim 6, wherein the blades are integrally cast.

8. (Original) The hoop stress relief mechanism described in Claim 1, wherein the rotary body has plurality of the slots about the outer rim.

9. (Original) The hoop stress relief mechanism described in Claim 8, wherein each slot of the plurality of slots is positioned between two adjacent blades.

10. (Original) The hoop stress relief mechanism described in Claim 8, wherein the curved slot portion of each slot of the plurality of slots is curved in the same direction.

11. (Currently amended) The hoop stress relief mechanism described in Claim 1, wherein the slot is formed by a wire of ~~an~~ the electric discharge wire machine.

12. (Original) The hoop stress relief mechanism described in Claim 1, wherein the distance between the tip and the linear slot portion is greater than 0.050".

13. (Original) The hoop stress relief mechanism described in Claim 1, wherein the tip angle is in a range of 20° to 80°.

14. (Currently amended) A rotary body with an axis of rotation about which the rotary body rotates, the rotary body comprising

a J-shaped slot with a linear slot portion extending inwardly a distance from the outer rim and providing communication between the first face and the second face, the J-shaped slot having a first end at the outer rim and a second end, the J-shaped slot also having a curved slot portion adjoining the second end of the linear slot portion, the curved

slot portion with a top surface and a bottom surface, the bottom surface being closer than the top surface to the axis of rotation of the rotary body.

15. (Currently amended) The rotary body described in Claim 14, wherein the J-shaped slot is formed by an electric discharge wire machine, which leaves a recast layer along all surfaces of the J-shaped slot, wherein the top surface and the bottom surface of the curved slot portion ~~is~~ are fabricated with a thinner recast layer than ~~other surfaces~~ an inner surface of the linear slot portion.

16. (Currently amended) The rotary body described in Claim 14, where the bottom surface of the curved slot portion is formed from making two or more passes of the electric discharge wire machine along the bottom surface of the curved slot portion, each pass removing a portion of the recast layer along the bottom surface of the curved slot portion, whereby the bottom surface is made smoother than other surfaces of the J-shaped slot.

17. (Currently amended) A gas turbine disk having integral blades and a hoop stress relief mechanism, the relief mechanism comprising

a slot with a linear portion and a curved portion, the linear portion extending inwardly a distance from an outer rim of the disk, the linear portion having a first end at the outer rim and a second end, the slot also having a curved portion adjoining the second end of the linear portion, the linear portion and the curved portion jointly extending through the disk to provide communication between a first face of the disk and the second face of the disk, wherein the slot is fabricated by an electric discharge wire machine.

18. (Cancelled)

19. (Original) The gas turbine disk described in Claim 17, wherein the slot is positioned between two blades.

20. (Original) A method of providing a hoop stress relief mechanism comprising a slot with a linear slot portion and a curved slot portion, the slot fabricated in a rotary body with an outer rim, two faces, and an axis of rotation, the method comprising

continuously cutting the linear slot portion between the faces of the rotary body from the outer rim inwardly a distance to an inward end of the linear slot portion;

cutting the curved slot portion between the faces of the rotary body by continuing from the inward end, the curved slot portion bending back towards the outer rim; and

spin balancing the rotary body.

21. (Original) The method described in Claim 20, wherein the steps of continuously cutting the linear slot portion and cutting the curved slot portion is accomplished by an electric discharge wire machine to remove material in the rotary body to form the linear slot portion and the curved slot portion thereby, the electric discharge wire machine leaving a recast layer along an inner surface of the linear slot portion and an inner surface of the curved slot portion.

22. (Original) The method described in Claim 21, further comprising the step of removing a part of the recast layer along the inner surface of the curved slot portion that is nearest the axis of rotation.

23. (Original) The method described in Claim 21, wherein the electric wire discharge machine makes at least a first pass and subsequent passes along the slot.

24. (Original) The method described in Claim 23, wherein the first pass defines the slot, and subsequent passes remove a part of the recast layer along the inner surface of the curved slot portion that is nearest the axis of rotation.

25. (Original) The method described in Claim 24, wherein the subsequent passes comprise three passes.

26. (Original) The method described in Claim 25, wherein all passes are made using a .008" wire.

27. (Original) The method described in Claim 26, wherein the three passes remove .00118" of the recast layer.

28. (Original) A method of fabricating a slot in a rotary body having an outer rim, two faces, and an axis of rotation, the slot having a linear slot portion extending from a first point at the outer rim to a second point situated inwardly a distance towards the axis of rotation, the slot further having curved slot portion continuing from the second point and curving back towards the outer rim to terminate at a third end, the slot allowing communication between the two faces, the method comprising

cutting the slot in the rotary body with wire of an electric wire discharge machine by making a first pass from the first point to the third point, whereby the slot is formed; removing a first portion of a recast layer formed along a bottom surface of the curved slot portion by moving the wire inwardly towards the axis of rotation by a first offset and moving the wire in a second pass from the third point to the second point, the second pass being parallel with the path of the first pass;

removing a second portion of the recast layer formed along the bottom surface by moving the wire inwardly towards the axis of rotation by a second offset and moving the wire in a third pass from the second pass; and

removing a third portion of the recast layer formed along the bottom surface by moving the wire inwardly towards the axis of rotation by a third offset and moving the wire in a fourth pass from the third point to the second point, the fourth pass being parallel with the path of the third pass; whereby the total portion of the recast layer along the bottom surface that is removed equals the sum of the first, second and third offsets.

29. (Original) The method of fabricating a slot in a rotary body described in Claim 28, wherein the wire has a diameter of 0.0008".

30. (Original) The method of fabricating a slot in a rotary body described in Claim 29, wherein the total portion of the recast layer that is removed equals 0.00118".

31. (Original) The method of fabricating a slot in a rotary body described in Claim 29, wherein the first offset is 0.00051", the second offset is 0.00063", and the third offset is 0.00004".